REMARKS

Claims 1-14 are pending.

Rejection of Claims under 35 USC §103(a)

Claims 1-7 and 12 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Dennis et al. (U.S. Patent 6,411,408). Claims 8-9 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Dennis in view of Auracher (U.S. Patent 5,392,377). Claim 10 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Dennis in view of Kai (U.S. Patent 6,154,588). Finally, the Examiner has also rejected claims 11 and 13-14 under 35 U.S.C. § 103(a) as being unpatentable over Dennis in view of Ford et al. (U.S. Patent 6,392,769).

The Applicant respectfully submits that, based on the Dennis reference, all of the Examiner's claim rejections fail to establish a prima facie case of obviousness.

The Examiner admits, "Dennis does not specifically disclose the properties of the DCM are being selected to suppress four-wave mixing rather than to provide complete chromatic dispersion compensation for the respective span." The Examiner argues, however, that Dennis' teaching that dispersion compensating fiber may be used to prevent inter-symbol interference makes it obvious to a person of ordinary skill in the art at the time of the invention that "dispersion compensation fiber spans such as the ones of Dennis can reduce non-linear interaction between channels such as four-wave mixing". However this is a mere assertion which the applicant denies, and in any event is totally unsupported.

The Applicant respectfully disagrees with the Examiner's argument, for at least the following reasons. First, inter-symbol interference is not a non-linear interaction *per se*. Accordingly the fact that Dennis teaches the use of DCF to prevent inter symbol interference does not imply that DCF can compensate for non-liner interactions *per se*. In any event Dennis does not teach or suggest that reducing inter symbol interference or compensating for timing jitter should also suppress four wave mixing, and the Examiner's rejection provides no reason why this should be obvious to a person skilled in the art.

Second, a person of ordinary skill in the art seeking a solution to the problem of four-wave mixing in a WDM system would not turn to the art in the field of soliton-based optical transmission systems for an answer.

Four-wave mixing, is explained at paragraph **[0015]** of the present application:

> "The non-linear effect responsible for this limit is four-wave mixing (FWM). This process is due to the fundamental non-linearity of the glass fibre transmission medium, and occurs when three photons (from two or three different wavelength channels) mix to produce a fourth photon at another wavelength."

The Applicant submits that there is no suggestion or motivation in Dennis to use dispersion compensating fiber to address the problem of four-wave mixing. To the extent that Dennis discloses dispersion compensating fibre, it is in the context of a soliton-based system, and a person of ordinary skill in the art trying to suppress four-wave mixing would not turn to the art of soliton-based optical transmission systems for an answer. Therefore, there would be no motivation to combine Dennis with any of the other references cited.

For the Examiner to establish a prima facie case of obviousness, three criteria must be considered: (1) there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine the reference teachings, (2) there must be a reasonable expectation of success, and (3) the prior art references must teach or suggest all of the claim limitations. MPEP §§ 706.02(j), 2142 (8th ed.).

For the Patent Office to combine references in an obviousness analysis, the Patent Office must do two things. First, the Patent Office must articulate a motivation to combine the references, and second, the Patent Office must support the articulated motivation with actual evidence. *In re Dembiczak*, 175 F.3d 994,999 (Fed. Cir. 1999). While the range of sources for the motivation is broad, the range of available sources does not diminish the requirement for actual evidence. *Id.*

In order to prevent hindsight analysis, there must be some motivation or suggestion to combine specific prior art in such a way as to arrive to the combination disclosed in the patent at issue. See, e.g., Yamanouchi Pharmaceutical Co., Ltd. v. Danbury Pharmacal, Inc., 231 F.3d 1339, 1343 (Fed. Cir. 2000): "*the suggestion to combine requirement stands as a critical safeguard against hindsight analysis and rote application of the legal test of obviousness.*", and Ecolochem, Inc. v. Southern California Edison Co., 227 F.3d at 1371-1372 (Fed. Cir. 2000), "*Combining prior art references without evidence or a suggestion, teaching, or motivation simply takes the inventor's disclosure as a blueprint for piecing together the prior art to defeat patentability--the essence of hindsight.*"

In view of Dennis' failure to teach or reasonably suggest the suppression of four-wave mixing, the Applicant respectfully submits that the Examiner can only apply the Dennis reference with the benefit of hindsight analysis, which is forbidden. Consequently, and in view of the arguments made above with respect to Dennis' failure to teach or reasonably suggest the limitations of the claims of the present application, each claim rejection by the Examiner based on the Dennis reference is unfounded.

Furthermore, even if there were motivation to combine Dennis with any of the other references cited (which is expressly denied), the Examiner's rejections still fail to establish how the combined references teach all of the claim elements. Without limiting the generality of the foregoing, none of the references cited by the Examiner teaches Claim 1's limitation of "the properties of the DCM being selected to suppress four-wave mixing rather than to provide complete chromatic dispersion compensation". Claim 13 of the present application recites these same limitations. Claim 14 of the present application recites the limitation of "deliberately compensating in each span only partially for the chromatic dispersion introduced in that span such that four-wave mixing is reduced." Therefore, Dennis does not teach or reasonably suggest the limitations of independent Claims 1, 13 or 14 of the present application, or any claim depending therefrom.

Accordingly, it is respectfully submitted that the above-mentioned rejections fail to establish a prima facie case of obviousness, by failing to provide and support an adequate motivation to combine the cited references to support the rejection, and by failing to teach or reasonably

suggest all of the limitations of claims 1-14. Therefore, Applicant respectfully requests that the Examiner withdraw his rejections of claims 1-14 under 35 U.S.C. § 103(a).

No fee is believed due for this submission. However, Applicant authorizes the Commissioner to debit any required fee from Deposit Account No. 501593, in the name of Borden Ladner Gervais LLP. The Commissioner is further authorized to debit any additional amount required, and to credit any overpayment to the above-noted deposit account.

Respectfully submitted,

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